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# January 2019 Update to the Texas Water Quality Management Plan

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Office of Water
Water Quality Division

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WQMP updates are also available on the TCEQ web site at:

< *http://www.tceq.texas.gov/permitting/wqmp/WQmanagement_updates.html* >

Developed in accordance with Sections 205(j), 208,
and 303 of the Federal Clean Water Act
and applicable regulations thereto.






Texas Commission on Environmental Quality

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# Introduction

The Texas Water Quality Management Plan (WQMP) is the product of a wastewater treatment facility planning process developed and updated in accordance with provisions of Sections 205(j), 208, and 303 of the federal Clean Water Act (CWA), as amended. The WQMP is an important part of the State's program for accomplishing its clean water goals.[1]

The Texas Department of Water Resources, a predecessor agency of the Texas Commission on Environmental Quality (TCEQ), prepared the initial WQMP for waste treatment management during the late 1970s. The Clean Water Act mandates that the WQMP be updated as needed to fill information gaps and revise earlier certified and approved plans. Any updates to the plan need involve only the elements of the plan that require modification. The original plan and its subsequent updates are collectively referred to as the State of Texas Water Quality Management Plan.

The WQMP is tied to the State's water quality assessments that identify priority water quality problems. The WQMPs are used to direct planning for implementation measures that control and/or prevent water quality problems. Several elements may be contained in the WQMP, such as effluent limitations of wastewater facilities, total maximum daily loads (TMDLs), nonpoint source management controls, identification of designated management agencies, and ground water and source water protection planning. Some of these elements may be contained in separate documents, which are prepared independently of the current WQMP update process, but may be referenced as needed to address planning for water quality control measures.

This document, as with previous updates[2], will become part of the WQMP after completion of its public participation process, certification by the TCEQ and approval by the United States Environmental Protection Agency (EPA).

The materials presented in this document revise only the information specifically addressed in the following sections. Previously certified and approved water quality management plans remain in effect.

The January 2019 WQMP update addresses the following topics:

1. Projected Effluent Limits Updates for water quality planning purposes
2. Service Area Population for Municipal Wastewater Facilities
3. Designation of Management Agencies for Municipal Wastewater Facilities
4. Total Maximum Daily Load Update

[1] A formal definition for a water quality management plan is found in 40 Code of Federal Regulations (CFR) 130.2(k).

[2] Fiscal Years 1974, 1975, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984/85, 1986/88, 1989, 1990, 1991, 1992, 1993/94, 1995, 1996, 1997/98, 02/1999, 05/1999, 07/1999, 10/1999, 01/2000, 04/2000, 07/2000, 10/2000, 01/2001, 04/2001, 07/2001, 10/2001, 01/2002, 04/2002, 07/2002, 10/2002, 01/2003, 04/2003, 07/2003, 10/2003, 01/2004, 04/2004, 07/2004, 10/2004, 01/2005, 04/2005, 07/2005, 10/2005, 01/2006, 04/2006, 07/2006, 10/2006, 01/2007, 04/2007, 07/2007, 10/2007, 01/2008, 04/2008, 07/2008, 10/2008, 01/2009, 04/2009, 07/2009, 10/2009, 01/2010, 04/2010, 07/2010,10/2010, 01/2011, 04/2011, 07/2011, 10/2011, BPUB 2011, 01/2012, 04/2012, 07/2012,10/2012, 01/2013, 04/2013, 07/2013,10/2013, 01/2014, 04/2014, 07/2014, 10/2014, 01/2015, 04/2015, 07/2015, 10/2015, 01/2016, 04/2016, 07/2016, 10/2016, 01/2017, 04/2017, 07/2017, 10/2017, 01/2018, 04/2018, 07/2018, and 10/2018.

The public comment period for the October WQMP update is from February 8, 2019 through March 12, 2019.

The Projected Effluent Limit Update section provides information compiled from November 1, 2018 through January 31, 2019, and is based on water quality standards, and may be used for water quality planning purposes in Texas Pollutant Discharge Elimination System (TPDES) permit actions.

The Service Area Population and Designation of Management Agency sections for municipal wastewater facilities has been developed and evaluated by the TCEQ in cooperation with the Texas Water Development Board (TWDB) and regional water quality management planning agencies.

The Total Maximum Daily Load (TMDL) Update section provides information on proposed wasteload allocations for new dischargers and revisions to existing TMDLs and has been developed by the Water Quality Planning Division, TMDL Program.

# Projected Effluent Limit Updates

Table 1 reflects proposed effluent limits for new dischargers and preliminary revisions to original proposed effluent limits for preexisting dischargers (MGD-Million Gallons per Day, $CBOD_5$ – 5 Day Carbonaceous Biochemical Oxygen Demand, $NH_3$-N – Ammonia-Nitrogen, $BOD_5$ – 5 Day Biochemical Oxygen Demand and DO – Dissolved Oxygen).

Effluent flows indicated in Table 1 reflect future needs and do not reflect current permits for these facilities. These revisions may be useful for water quality management planning purposes. The effluent flows and constituent limits indicated in the table have been preliminarily determined to be appropriate to satisfy the stream standards for dissolved oxygen in their respective receiving waters. These flow volumes and effluent sets may be modified at the time of permit action. These limits are based on water quality standards (WQS) effective at the time of the TCEQ production of this update. WQS are subject to revision on a triennial basis.

Table 1. Projected Effluent Limit Updates

| State Permit Number | Segment Number | EPA ID Number | Permittee Name County | Flow (MGD) | $CBOD_5$ (mg/L) | $CBOD_5$ (lbs/day) | $NH_3$-N (mg/L) | $NH_3$-N (lbs/day) | $BOD_5$ (mg/L) | $BOD_5$ (lbs/day) | DO (mg/L) | Months/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10004-001 | 1213 | TX0053651 | City of Cameron Milam | 1.25 | 10 | 104.25 | 2 | 20.85 | | | 6 | |
| 10396-001 | 2422 | TX0033944 | City of Anahuac and Trinity Bay Conservation District Chambers | 0.72 | 7 | 42.03 | 2 | 12.01 | | | 4 | |
| 11430-001 | 1242 | TX0056189 | City of Snook Burleson | 0.175 | | | | | 20 | 29.19 | 4 | |
| 12644-001 | 1244 | TX0092151 | City of Leander Williamson | 5.25 | 5 | 218.93 | 2 | 87.57 | | | 6 | |
| 14197-001 | 1258 | TX0123137 | Fort Bend County MUD No. 131 Fort Bend | 0.78 | 10 | 65.05 | 3 | 19.52 | | | 4 | |
| 14546-001 | 1108 | TX0126951 | Brazoria County MUD No. 31 Brazoria | 2.0 | 7 | 116.76 | 2 | 33.36 | | | 6 | |
| 14758-001 | 1245 | TX0129216 | Fort Bend County MUD No. 182 Fort Bend | 1.50 | 5 | 62.55 | 2 | 25.02 | | | 6 | Refer to Appendices I & II for TMDL Update |
| 14976-001 | 1229 | TX0138827 | Happy Hill Farm Childrens Home Inc. Somervell | 0.02 | | | | | 20 | 3.34 | 2 | |
| 15676-001 | 1012 | TX0138487 | Quadvest, L.P. Montgomery | 0.500 | 5 | 20.85 | 1.1 | 4.59 | | | 6 | |

| State Permit Number | Segment Number | EPA ID Number | Permittee Name County | Flow (MGD) | $CBOD_5$ (mg/L) | $CBOD_5$ (lbs/day) | $NH_3$-N (mg/L) | $NH_3$-N (lbs/day) | $BOD_5$ (mg/L) | $BOD_5$ (lbs/day) | DO (mg/L) | Months/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15696-001 | 0821 | TX0138614 | City of Howe & Howe Commercial, Ltd. Grayson | 2.50 | 5 | 104.25 | 1 | 20.85 | | | 6 | |
| 15711-001 | 1803 | TX0138657 | Quail Run Services, L.L.C. Karnes | 0.05 | | | | | 10 | 4.17 | 4 | |
| 15721-001 | 1209 | TX0138746 | Bassichis Development L.L.C. Brazos | 0.075 | 10 | 6.26 | 3 | 1.88 | | | 4 | |
| 15728-001 | 1243 | TX0138789 | Victor Dee Turley & Alexis Hill Turley Bell | 0.22 | 10 | 18.35 | 3 | 5.50 | | | 4 | |
| 15732-001 | 1804 | TX0138819 | Gram Vikas Partners, Inc. Guadalupe | 0.30 | 5 | 12.51 | 2 | 5.00 | | | 4 | |
| 15739-001 | 1012 | TX0138843 | Tejas Creek Ltd. Montgomery | 0.100 | 10 | 8.34 | 2 | 1.67 | | | 4 | |
| 15740-001 | 1012 | TX0138851 | Mont 200 L.L.C. Montgomery | 0.210 | 10 | 17.51 | 3 | 5.25 | | | 4 | |

# Planning Information Summary

The Water Quality Planning Division of the TCEQ coordinated with the TWDB and regional planning agencies to compile the wastewater facility information in this section. Domestic facility financing decisions under the State Revolving Loan Fund (SRF) program must be consistent with the certified and approved WQMP.

The purpose of this section is to present data reflecting facility-planning needs, including previous water quality management plan needs requiring revision. Data are also presented to update other plan information for the TWDB's SRF projects. Table 2 contains the updated Service area population information. The table is organized in alphabetical order and includes the following 10 categories of information:

1. *Planning Area* – Area for which facility needs are proposed. The facility planning areas are subject to change during the facility planning process and any such changes will be documented in a later water quality management plan update. All planning areas listed are also designated management agencies (DMAs) unless otherwise noted in the "Comments" column.

2. *Service Area* – Area that receives the provided wastewater service.

3. *Needs* – A "T" indicates a need for either initial construction of a wastewater treatment plant, additional treatment capacity, or the upgrading of a wastewater treatment plant to meet existing or more stringent effluent requirements. A "C" indicates a need for improvements to, expansion of, rehabilitation of, or the initial construction of a wastewater collection system in the facility planning area. "T/C" indicates a need for both treatment and collection system facilities. More detailed facility planning conducted during a construction project may define additional needs and those needs will be reflected in a future update to the WQMP. A "F" indicates a need for flood mitigation.

4. *Needs Year* – The year in which the needs were identified for the planning area.

5. *Basin Name* – The river basin or designated planning area where the entity is located. The seven water quality management planning areas designated by the Governor are Corpus Christi [Coastal Bend Council of Governments (CBCOG)], Killeen-Temple [Central Texas Council of Governments (CTCOG)], Texarkana [Ark-Tex Council of Governments (ATCOG)], Southeast Texas [South East Texas Regional Planning Council (SETRPC)], Lower Rio Grande Valley [Lower Rio Grande Valley Development Council (LRGVDC)], Dallas-Fort Worth [North Central Texas Council of Governments (NCTCOG)] and Houston [Houston-Galveston Area Council (H-GAC)]. Basin names are shown for agencies outside one of these areas.

6. *Segment* – The classified stream segment or tributary into which any recommended facility may discharge existing or projected wastewater. In the case of no-discharge facilities, this is the classified stream segment drainage area in which the facilities are located.

7. *County* – The county in which the facility planning area is located.

8. *Date* – The date the planning information was reviewed by the TCEQ.

9. *Comments* – Additional explanation or other information concerning the facility planning area.

10. *Population* – The base year and projected populations for each facility planning area. Population projections presented are consistent with the latest available statewide population projections or represent the most current information obtained from facility planning analyses.

The facility information in this section is intended to be utilized in the preparation of facility plans and the subsequent design and construction of wastewater facilities. Design capacities of the treatment and collection systems will be based upon the population projections contained in this document plus any additional needed capacity established for commercial/industrial flows and documented infiltration/inflow volumes (treatment or rehabilitation). The probable needs shown under the "Needs" heading are preliminary findings; specific needs for an area shall be as established in the completed and certified detailed engineering studies conducted during facility planning under the SRF and other state loan programs.

Specific effluent quality for any wastewater discharges resulting from any of the facilities recommended in this document will be in accordance with the rule on the Texas Surface Water Quality Standards in effect at the time of permit issuance for the specific facility.

Table 2. Service Area Population Updates

| Planning Agency | Service Area | Needs | Needs Year | Basin Name / COG | Segment | County | WQMP Date | Comments | Year | Population |
|---|---|---|---|---|---|---|---|---|---|---|
| Cedar Bayou Utility District | District boundary | T | 2018 | Trinity-San Jacinto Coastal Basin/ H-GAC | 0901 | Harris | 11/6/2018 | Demolition of decommissioned WWTF | 2018 | 418 |
| | | | | | | | | | 2020 | 461 |
| | | | | | | | | | 2030 | 461 |
| | | | | | | | | | 2040 | 461 |
| City of Arlington | City limits | C | 2018 | Trinity River Basin/ NCTCOG | 0841 | Tarrant | 12/10/2018 | Collection system improvements | 2018 | 372,427 |
| | | | | | | | | | 2020 | 377,478 |
| | | | | | | | | | 2030 | 395,124 |
| | | | | | | | | | 2040 | 421,748 |
| City of Bevil Oaks | City limits | T | 2018 | Neches-Trinity Coastal Basin | N/A | Jefferson | 10/26/2018 | Repair of WWTF electrical systems damage during Hurricane Harvey | 2018 | 1,244 |
| | | | | | | | | | 2020 | 1,247 |
| | | | | | | | | | 2030 | 1,260 |
| | | | | | | | | | 2040 | 1,272 |
| City of Grand Prairie | City limits | C | 2018 | Trinity River Basin/ NCTCOG | 0841 | Dallas | 12/10/2018 | Collection system improvements | 2018 | 187,050 |
| | | | | | | | | | 2020 | 194,223 |
| | | | | | | | | | 2030 | 230,149 |
| | | | | | | | | | 2040 | 266,065 |
| City of Houston | City limits | C | 2018 | San Jacinto River Basin/ H-GAC | various | Harris | 10/2/2018 | Collection system improvements | 2018 | 2,233,000 |
| | | | | | | | | | 2020 | 2,263,000 |
| | | | | | | | | | 2030 | 2,447,000 |
| | | | | | | | | | 2040 | 2,624,000 |
| City of Johnson City | City limits | T/C | 2018 | Colorado River Basin/ NA | 1414 | Blanco | 10/18/2018 | WWTF upgrades, collection system improvements | 2010 | 1,616 |
| | | | | | | | | | 2020 | 1,910 |
| | | | | | | | | | 2030 | 2,191 |
| | | | | | | | | | 2040 | 2,437 |
| City of Kerrville | City limits | C | 2018 | Guadalupe River Basin/ NA | 1806 | Kerr | 6/28/2018 | Design and construction of new lift station, force main, pumps, and collection line rerouting. | 2018 | 24,292 |
| | | | | | | | | | 2020 | 23,061 |
| | | | | | | | | | 2030 | 24,699 |
| | | | | | | | | | 2040 | 25,400 |
| City of Nome | City limits | T/C | 2018 | Neches River Basin | N/A | Jefferson | 10/4/2018 | Repair of WWTF, rehabilitation of levees, and collection system damaged during Hurricane Harvey | 2018 | 600 |
| | | | | | | | | | 2020 | 608 |
| | | | | | | | | | 2030 | 648 |
| | | | | | | | | | 2040 | 692 |

| Planning Agency | Service Area | Needs | Needs Year | Basin Name / COG | Segment | County | WQMP Date | Comments | Year | Population |
|---|---|---|---|---|---|---|---|---|---|---|
| City of Terrell | City limits | T/C | 2018 | Trinity River Basin / NCTCOG | 0818 | Kaufman | 10/2/2018 | WWTF rehabilitation, and collection system improvements | 2018 | 17,329 |
| | | | | | | | | | 2020 | 18,832 |
| | | | | | | | | | 2030 | 24,741 |
| | | | | | | | | | 2040 | 43,403 |
| Hardin County WCID #1 | District boundary | C | 2018 | Neches River Basin/ NA | 0607 | Hardin | 10/3/2018 | Rehabilitation of sanitary sewer grinder pump stations | 2018 | 1,691 |
| | | | | | | | | | 2020 | 1,713 |
| | | | | | | | | | 2030 | 1,827 |
| | | | | | | | | | 2040 | 1,950 |
| Orange County WCID #1 | District boundary | C | 2018 | Neches River Basin | N/A | Orange | 10/12/2018 | Rehabilitation of lift station | 2018 | 10,969 |
| | | | | | | | | | 2020 | 10,991 |
| | | | | | | | | | 2030 | 11,101 |
| | | | | | | | | | 2040 | 11,213 |

# Designated Management Agencies

In order to be designated as a management agency for wastewater collection or treatment, an entity must demonstrate the legal, institutional, managerial and financial capability necessary to carry out the entity's responsibilities in accordance with Section 208 (c) of the Clean Water Act (see below list of requirements). Before an entity can apply for a state revolving fund loan, it must be recommended for designation as the management agency in the approved WQMP. Designation as a management agency does not require the designated entity to provide wastewater services, but enables it to apply for grants and loans to provide the services. The facilities listed in Table 3 have submitted Designated Management Agencies (DMA) resolutions to the TCEQ. The TCEQ submits this DMA information to the EPA for approval as an update to the WQMP.

### Section 208 (c) (2) Requirements for Management Agency:

208(c)(2)(A): to carry out portions of an area-wide waste treatment plan.
208(c)(2)(B): to manage waste treatment works.
208(c)(2)(C): directly or by contract to design and construct new works.
208(c)(2)(D): to accept and utilize grants.
208(c)(2)(E): to raise revenues, including assessment of waste treatment charges.
208(c)(2)(F): to incur short and long term indebtedness.
208(c)(2)(G): to assure community pays proportionate cost.
208(c)(2)(H): to refuse to receive waste from non-compliant dischargers.
208(c)(2)(I): to accept for treatment industrial wastes.

Table 3. Designated Management Agencies

| Planning Agency | Service Area | DMA Needs | DMA Date |
|---|---|---|---|
| Cedar Bayou Utility District | District boundary | T | 8/27/2018 |
| City of Arlington | City limits | C | 9/5/2017 |
| City of Grand Prairie | City limits | C | 9/18/2012 |
| City of Johnson City | City limits | T/C | 7/30/2014 |
| City of Kerrville | City limits | C | 11/13/2018 |
| City of Nome | City limits | T/C | 1/7/2019 |
| City of Terrell | City limits | T/C | 8/7/2018 |
| Hardin County WCID #1 | District boundary | C | 1/7/2019 |
| Orange County WCID #1 | District boundary | C | 11/19/2018 |

# Total Maximum Daily Load Updates

The Total Maximum Daily Load (TMDL) Program works to improve water quality in impaired or threatened waters bodies in Texas. The program is authorized by and created to fulfill the requirements of Section 303(d) of the federal Clean Water Act.

The goal of a TMDL is to restore the full use of a water body that has limited quality in relation to one or more of its uses. The TMDL defines an environmental target and based on that target, the State develops an implementation plan with wasteload allocations for point source dischargers to mitigate anthropogenic (human-caused) sources of pollution within the watershed and restore full use of the water body.

The development of TMDLs is a process of intensive data collection and analysis. After adoption by the TCEQ, TMDLs are submitted to the EPA for review and approval.

The attached appendices may reflect proposed wasteload allocations for new dischargers and revisions to TMDLs. To be consistent, updates will be provided in the same units of measure used in the original TMDL document. Also, note that for bacteria TMDLs, loads may be expressed in counts per day, organisms per day, colony-forming units per day, or similar expressions. These typically reflect different lab methods, but for the purposes of the TMDL program, these terms are considered synonymous.

# Appendix I. One Total Maximum Daily Load for Bacteria in Upper Oyster Creek for Segment Number 1245

TMDL Updates to the Water Quality Management Plan (WQMP): Bacteria in Upper Oyster Creek (Segment 1245)

The document *One Total Maximum Daily Load for Bacteria in Upper Oyster Creek for Segment Number 1245* was adopted by the TCEQ on 08/08/07 and approved by EPA on 09/28/07, and became an update to the state's Water Quality Management Plan (WQMP). Twelve subsequent WQMP updates prior to this one have provided individual wasteload allocations (WLAs) for permitted facilities.

The purpose of this WQMP update is to make the following changes to the TMDL, presented in Table 1:

- update the WLA for one facility that has increased its permitted discharge, and
- remove a permit that has expired.

Table 1 –Permitted Bacteria Allocation for Amended Discharges (pp. 35-37 in original TMDL document)

| State Permit Number | Outfall | EPA Permit Number | Segment Number | Permittee Name | Flow (MGD) | Waste Load Allocation (WLA) | TMDL/ Comments |
|---|---|---|---|---|---|---|---|
| 14758-001 | 001 | TX0129216 | 1245 | FORT BEND CO. MUD # 182 | 1.5 | $2.24 \times 10^{10}$ cfu *E. coli* per day | Increased discharge |
| 14692-001 | 001 | TX0128635 | 1245 | FORT BEND CO. MUD # 182 | NA | NA | Permit expired |

Note that this TMDL was written for *E. coli* and that it used the single sample criterion of 394 cfu/100 mL. All of the permitted facilities covered by the original TMDL and subsequent WQMP updates have also been given a daily average for *E. coli* of 126 cfu/100 mL consistent with standard bacteria permitting practices for the state of Texas. In addition, watershed stakeholders are meeting annually to discuss water quality in Upper Oyster Creek related to this TMDL project (both instream data as well as self-reported data from permitted facilities), and may recommend stricter permit limits for *E. coli* in the future if deemed necessary.

The changes reflected in this update resulted in the shifting of allocations between WLA Continuous, WLA Non-continuous, and LA Other terms in Allocation Reach 2. This was originally presented in Table 11 in the original TMDL document, and the new allocations are updated here in Table 2. This shifting of allocations is done in such a way that the WLA Non-continuous and LA Other terms maintain the proportions presented in the April 2016 WQMP update.

Table 2 – TMDL allocation summary for Allocation Reach 2 (Updates Table 11, p. 37 in the TMDL document)

**All units expressed in billion cfu of *E. coli* per day**

| Allocation Reach | TMDL | WLA Continuous | WLA Non-continuous | LA Other | MOS |
|---|---|---|---|---|---|
| 2 | 1,682 | 201.4 | 693.4 | 787.2 | Implicit |

# Appendix II. Two Total Maximum Daily Loads for Dissolved Oxygen in Upper Oyster Creek: Segment Number 1245

TMDL Updates to the Water Quality Management Plan (WQMP): Dissolved Oxygen in Upper Oyster Creek (Segment 1245)

The document *Two Total Maximum Daily Loads for Dissolved Oxygen in Upper Oyster Creek: Segment 1245* was adopted by the TCEQ on 07/28/10 and approved by EPA on 09/21/10, and became an update to the state's Water Quality Management Plan (WQMP). It has had seven subsequent WQMP updates prior to this one.

The purpose of this update is to make the following changes to the TMDL, presented in Table 1:

- update the wasteload allocations (WLAs) for one facility that has increased its permitted discharge, and
- remove a permit that has expired.

The allocations presented in this update were verified as satisfactory using the QUAL2K model used in establishing the original TMDL.

Table 1 –WLA for Upper Reach 1245_03 by Individual WWTF (Table 9, p. 29 in original TMDL document)

| Facility | TCEQ Permit No. EPA Permit No. Outfall No. | Final Permitted Discharge (MGD) | Allowable CBOD5 Loading (kg/d) \| (lb/d) | Allowable NH3-N Loading (kg/d) \| (lb/d) | Comments |
|---|---|---|---|---|---|
| FORT BEND CO. MUD # 182 | WQ0014758-001 TX0129216 Outfall 001 | 1.5 | 28.39 \| 62.60 | 11.36 \| 25.04 | Increased discharge |
| FORT BEND CO. MUD # 182 | WQ0014692-001 TX0128635 Outfall 001 | NA | NA | NA | Permit expired |

The relevant permit limits for the facility that increased its discharge are provided in Table 2.

Table 2 – Permitted Loadings for Individual WWTFs (Corresponds to Table 3, p. 13 in original TMDL document)

| Facility | TCEQ Permit No. EPA Permit No. Outfall No. | Final Permitted Discharge (MGD) | $CBOD_5$ (mg/L) | $NH_3$-N (mg/L) | Dissolved Oxygen (mg/L) |
|---|---|---|---|---|---|
| FORT BEND CO. MUD # 182 | WQ0014758-001 TX0129216 Outfall 001 | 1.5 | 5 | 2 | 6 |

The TMDL summary equations must also be updated for carbonaceous biochemical oxygen demand ($CBOD_5$; Table 3) and ammonia nitrogen ($NH_3$-N; Table 4) to reflect these changes.

Table 3 - Summary of TMDLs for Upper Reach $CBOD_5$ (Table 13, p. 36 in original TMDL document)

| Source Category | Proposed (Full Permitted) Loading[1] (kg/d) | Allowable Loading[2] (kg/d) |
|---|---|---|
| 1245_03: | | |
| Waste Load Allocation | 326.68 | 326.68 |
| Load Allocation | 96.00 | 96.00 |
| Total Loading | 422.68 | 422.68 |

Table 4 - Summary of TMDLs for Upper Reach $NH_3$-N (Table 14, p. 37 in original TMDL document)

| Source Category | Proposed (Full Permitted) Loading[1] (kg/d) | Allowable Loading[2] (kg/d) |
|---|---|---|
| 1245_03: | | |
| Waste Load Allocation | 89.61 | 89.61 |
| Load Allocation | 3.69 | 3.69 |
| Total Loading | 93.30 | 93.30 |

1 Those facilities routing wastewater through polishing ponds are included in the total, assuming quality exiting the pond(s) is 1.3 mg/L CBOD5 and 0.05 mg/L NH3-N.
2 Allowable loading is determined using the QUAL2K model developed for the TMDL and existing/proposed discharges at limits necessary to meet the relevant dissolved oxygen criteria.

Note: As stated earlier, the allocations presented in this update were verified as satisfactory using the QUAL2K model used in establishing the original TMDL. The original water quality sampling for the project was completed in 2005, and since then conditions in the watershed have changed and there had been limited sampling to assess water quality. A new sampling project for Segment 1245 began in December 2015 and continued approximately monthly through August 2017. In addition to providing valuable information to concerned stakeholders in the watershed, these data are now being analyzed and a new modeling effort is underway.